

Our 1-year achalasia experience

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ABSTRACT

Introduction: In our study, we aimed to share our last 1-year achalasia experience in our center, where achalasia surgery has never been performed before.

Materials and Methods: The data of patients diagnosed with achalasia in our general surgery clinic between 2021 and 2022 were evaluated. Patients' age, gender, presence of additional disease, procedures performed, perioperative and post-operative complications, length of hospital stay, duration of operation, length of myotomy, and 3-month follow-up results were evaluated.

Results: A total of ten patients were identified. The mean age of the patients was 37.4 (28–46). Five (50%) were male and 5 (50%) were female. Myotomy length was 10.4±1.4 cm (9–13), hospitalization time was 4.2±1.2 days, and operation time was 154±24.5 min. Subcutaneous emphysema, chest discomfort, and post-operative dysphagia were the most prevalent problems. Laparoscopic Heller myotomy with dorr fundoplication was performed on all patients. One patient was referred to an experienced center for total esophagectomy.

Conclusion: Laparoscopic modified Heller myotomy and per-oral endoscopic myotomy (POEM) method is effective treatment options in the treatment of achalasia. Moreover, it might be difficult for patients to find POEM centers, the surgical option should not be overlooked.

Keywords: Achalasia, Dorr fundoplication, Laparoscopic heller myotomy

Introduction

Achalasia, which literally means inability to relax, occurs due to loss of myenteric neurons responsible for esophageal peristalsis and lower esophageal sphincter (LES) relaxation.^[1] The etiology leading to this is not known clearly.^[2] Although it is seen with a similar frequency between the sexes, its incidence increases with age. Its incidence is generally 1.6/100000.^[3] The sporadic form is most common. It may occur as Chagas disease secondary

to Pseudoachalasia or Trypanosoma crusi infection.^[1] The most common symptom is dysphagia. This may be accompanied by symptoms such as regurgitation, cough, chest pain, and weight loss.^[4-6] Barium radiographs, endoscopy, and manometry are used in the diagnosis. The gold standard method is the high resolution manometer (HRM).^[7] Pharmacological agents (calcium channel blockers and nitrates), botulinum toxin, endoscopic balloon dilatation, per-oral endoscopic myotomy (POEM), and surgi-



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cally heller myotomy (laparoscopy/open) can be used for treatment. Pharmacological treatment is only preferred in patients who cannot be treated with endoscopic or surgical treatment or who do not accept these methods.^[8]

Materials and Methods

In this retrospective case-control study, the data of patients diagnosed with achalasia at the University of Health Sciences Kanuni Sultan Süleyman Training and Research Hospital between March 2021 and March 2022 were analyzed. The diagnosis of the patients was made with HRM performed in external centers as standard. Age, gender, presence of additional disease, procedures performed, perioperative and post-operative complications, length of hospital stay, duration of operation, and length of myotomy were evaluated. As in the Nissen fundoplication, the operation was performed in the supine position with five laparoscopic thoracars (3 10 mm and 2 5 mm). Laparoscopic dissector, hook, and LigaSure™ Maryland were used for myotomy. Myotomy lengths were measured

with rulers placed laparoscopically. Ethical approval of our study was obtained from our hospital (IRB number 2022.06.143).

Results

Ten patients were included in our study. Of these, 5 (50%) were male and 5 (50%) were female. The mean age of the patients was 37.4 (28–46). Myotomy length was 10.4±1.4 cm (9–13), hospitalization time was 4.2±1.2 days, and operation time was 154±24.5 min (Table 1). Standard laparoscopic heller myotomy + dor fundoplication operation was performed in 10 patients and subcutaneous emphysema was detected in six of 10 patients in the perioperative and post-operative period. One of these patients had perioperative left pleural injury and the same patient had perforation at the esophagogastric junction. The left pleural injury was repaired with hemoclips after aspiration, and the perforation was repaired with laparoscopic primary sutures. Pneumothorax did not develop in the follow-ups. Two patients were followed up in the intensive

Table 1. Data of patients

Age-Gender	Method	Myotomy length (cm)	Operation time (min)	Hospitalization time (day)	Complication	3 months follow-up
45 F	LHM+Dor fundoplication	10	190	5	subcutaneous emphysema	dysphagia chest pain
32 F	LHM+Dor fundoplication	11	170	4	subcutaneous emphysema	-
37 M	LHM+Dor fundoplication	9	150	4	-	-
37 F	LHM+Dor fundoplication	11	140	4	subcutaneous emphysema	-
41 M	LHM+Dor fundoplication	12	140	3	subcutaneous emphysema	-
28 M	LHM+Dor fundoplication	12	150	5	subcutaneous emphysema, perforation, pleural injury	-
44 F	LHM+Dor fundoplication	13	200	7	subcutaneous emphysema	nausea, persistent dysphagia chest pain
28 F	LHM+Dor fundoplication	11	130	3	-	dysphagia chest pain
36 M	LHM+Dor fundoplication	9	140	3	subcutaneous emphysema	-
46 F	LHM+Dor fundoplication	9	130	4	-	chest pain

care unit for 1 day after the operation. The continuation of bradycardia after the operation, which was also present in the pre-operative period in one patient, as a follow-up reason. In the other patient, subcutaneous emphysema was recorded as high partial carbon dioxide value in arterial blood gas. In 40% of the patients, chest pain was the most unpleasant symptom. In the 3-month follow-up of the patients, persistent dysphagia was observed in only one patient and additional surgical intervention was planned as the condition could not be resolved with consecutive balloon dilatations. For this, he was directed to the experienced center.

Discussion

Achalasia is a primary motility disorder of unknown etiology.^[9] Although it is rare, it usually occurs between the ages of 20–50, regardless of gender. Indeed, in our study, 91% of our patients were in this age range. Again, in our study, it was seen that the male and female ratios were close to each other (46.5–54.5%, respectively).

Today's technological and technical developments have also provided important advances in the treatment of this disease. None of the methods applied in the treatment of achalasia can improve esophageal aperistalsis and LES relaxation.^[10] The basic principle in treatment is to eliminate the symptoms of the disease and to ensure esophageal emptying.^[11] Non-surgical and surgical methods can be used in its treatment.^[12] In non-surgical treatment; medical drugs, botulinum toxin,^[13] endoscopic balloon dilatation,^[14] and POEM method, which has recently been used frequently.^[15] Surgical treatment is; also known as Heller myotomy, it is the surgical incision of the distal esophagus and LES muscle layer (Fig. 1). It was first applied by the German surgeon Ernst Heller in 1913.^[16] The two most important modifications in operation in the historical process; the operation involved cutting only

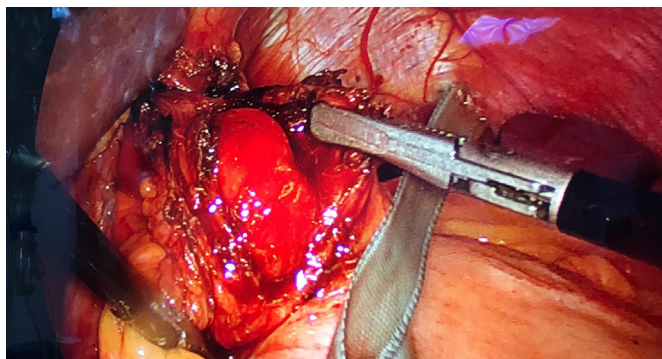


Figure 1. Image in operation.

the muscle fibers on the anterior aspect of the cardia and adding partial fundoplication to reduce the risk of GER.^[17] Today, this technique can be safely applied laparoscopically.^[18] The type of fundoplication applied is important on the results due to the absence of esophageal peristalsis. In the studies, post-operative dysphagia; it was observed that it was more common in patients who underwent Nissen fundoplication than in patients who underwent partial fundoplication.^[13] It has been observed that anterior (Dor) and posterior (Toupet) partial fundoplications after laparoscopic Heller myotomy give similar results in reflux control.^[19]

Laparoscopic Heller myotomy combined with partial fundoplication is a safe procedure. The mortality rate has been reported as 0.1%.^[13] The most common complication is perforation of the distal esophagus or gastric mucosa, which is usually noticed during the operation and is repaired intraoperatively and does not cause additional morbidity. While the average complication rate in laparoscopic Heller myotomy is 6.3% (0–35%), its clinical reflection is reported as 0.7% (0–3%). Patients with a Type 2 pattern on high-resolution manometry constitute the group that responds best to this treatment. While Type 1 and Type 2 achalasia respond similarly to PD and myotomy; Type 3 achalasia responds better to myotomy than PD. The possible factor here is that a wider and more proximal esophageal muscle fiber cut can be achieved with myotomy compared to PD. In the post-operative period, recurrence of dysphagia is often seen in 12–18 months. Inadequate myotomy (especially on the gastric side where myotomy is more difficult), delayed healing of myotomy, and excessively tight anti-reflux helix are among the possible causes of treatment failure. Chest pain is a more difficult condition to treat compared to other symptoms and patients should be informed about it. In case of recurring symptoms after Heller myotomy, PD can be applied safely, and if the conservative treatment performed in this way fails, a repeat Heller myotomy or POEM can be safely applied.^[20] POEM appears to be a better treatment option for those with Type 3 achalasia. The success of POEM and LHM in improving symptoms was found to be similar, and LHM or POEM is recommended instead of PD in Type 3 achalasia.^[8] Dysphagia was detected tree of patients in the 3-month follow-up. Balloon dilatation was applied to these patients in the first plan and the patients are being followed up. Another 44-year-old male patient underwent balloon dilatation 8 times in 10 years and was hospitalized in our emergency service with the complaint

of inability to take oral administration and the operation was performed. In the radiological images of the patient, megaesophagus was seen, in the endoscopy, the scope did not pass distally and the esophagus was severely dilated. During the operation, it was observed that there was advanced fibrosis in the muscle fibers. The symptoms in the patient who was followed up on for a month continued to be present. After balloon dilatation failed, the patient was referred to a more experienced center.

As a result, the most effective treatment methods in achalasia patients today are laparoscopic modified Heller myotomy and POEM methods. Today, since the POEM technique is still not easily accessible to the patients, the laparoscopic modified heller myotomy technique can be safely applied in the treatment by experienced centers with high laparoscopic experience.

Disclosures

Ethics Committee Approval: Kanuni Sultan Suleyman Training and Research Hospital Ethics Committee (IRB number: 2022.06.143).

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